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An Ecosystem for Digital Shadows in Manufacturing

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Abstract

Digital Shadows are data structures precisely tailored to support decision making in domain-specific real-time that promise tremendous potential to reduce time and cost in manufacturing. They are often engineered ad-hoc, for single specific applications, without considering their aggregation, combination, or reuse. This lack of foundations hampers a joint understanding of Digital Shadows that prevents joint research as well as collaboration and exchange of Digital Shadows across enterprise boundaries. Based on interdisciplinary research, we conceived a conceptual model of Digital Shadows that can guide their engineering, combination, and reuse. This not only supports researchers and practitioners in better understanding each other when discussing Digital Shadows but also eases the engineering of compatible and exchangeable Digital Shadows.

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